UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,810	06/22/2001	Sriram Rao	50269-0517	7621

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HICKMAN PALERMO TRUONG & BECKER, LLP
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110

EXAMINER
MAIS, MARK A

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/887,810	RAO, SRIRAM
	Examiner	Art Unit	
	Mark A. Mais	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 May 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☒ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. <u>*11 August 2005*</u>.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section
> 122(b), by another filed in the United States before the invention by the applicant for patent or
> (2) a patent granted on an application for patent by another filed in the United States before the
> invention by the applicant for patent, except that an international application filed under the
> treaty defined in section 351(a) shall have the effects for purposes of this subsection of an
> application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Viswanadham et al.

(USP 6,424,659).

3. With regard to claims 1 and 16, Viswanadham et al. discloses a <u>machine-implemented</u>

method of and a computer-readable medium <u>carrying one or more sequences of instructions</u>

bearing instructions for performing the method for sending packets in a computer system

<u>wherein execution of the one or more sequences of instructions by one or more processors causes</u>

<u>the one or more processors</u> **[Fig. 2A, interpreted as the combination of switch 20, network**

management processor (NMP) 10, and route switch (RS) processor 12, col. 2, lines 43-47]

comprising the steps of: communicating from <u>an application</u> **[RISC processors 10, 12 in each**

switch element 22 execute software (interpreted by the Examiner as the claimed

application), col. 2, lines 56-57] to an operating system level a policy for manipulating packets

[dynamic routing, per-port multicast/broadcast, col. 2, lines 60-65]; and at the operating

system level, modifying the packets based on the policy **[QOS provisioning, col. 3, lines 1-4]**.

4. With regard to claims 31 and 32, Viswanadham et al. discloses that the policy is a first policy,

wherein the packets are a first set of packets, and the method further comprises the steps of:

    communicating, from the application to the operating system, a second policy for

manipulating packets; and at the operating system, modifying a second set of packets based on

the second policy while the operating system is still configured to modify the first set of packets

based on the first policy **[the executed software is stored in flash memory, and is updateable**

(e.g., dynamic routing includes standards-based routing such as OSPF and RIP), col. 2,

lines 59-62. Thus, it is inherent that an update to a dynamic routing protocol such as OSPF

or RIP would run a first set of packets through one set of ports, and then dynamically

change those ports to broadcast or multicast a second set of packets].

5. With regard to claims 2 and 17, Viswanadham et al. discloses that <u>the step of communicating</u>

<u>the policy comprises:</u>

<u>at the operating system, in response to receiving the policy from the application, storing</u>

<u>the policy in a data structure</u> [the executed software is stored in flash memory, and is

updateable (e.g., dynamic routing includes standards-based routing such as OSPF and

RIP), col. 2, lines 59-62].

6. With regard to claims 3 and 18, Viswanadham et al. discloses that the policy indicates

destinations to which messages should be redirected [packets are directed from a receive ports

to a transmit ports (col. 11, lines 47-53) via forwarding block/transmit queue management

block, col. 11, lines 28-35; routing information is determined from the packet headers (e.g.,

col. 21, line 61 to col. 22, line 3)].

7. With regard to claims 4 and 19, Viswanadham et al. discloses that the step of modifying the

packets includes receiving a packet [via the receive port, col. 11, lines 47-53], replicating the

packet based on the policy to create a plurality of replicated packets for a plurality of users

interested in receiving the packet [inherently, the packets are replicated when either a

broadcast or multicast command is used in the switch, *see also* col. 3, lines 54-56]; and the

method further comprises the step of transmitting the replicated packets to the interested users

based on the policy [the forwarding engine (FE) can multicast or broadcast to selected/all

ports, col. 24, lines 6-10, *see also* col. 21, lines 43-45].

8. With regard to claims 5 and 20, Viswanadham et al. discloses that a machine-implemented

method of, and a computer-readable medium carrying one or more sequences of instructions for

sending packets wherein execution of the one or more sequences of instructions by one or more

processors causes the one or more processors to perform the steps of: communicating from an

application to hardware a policy for manipulating packets **[dynamic routing, per-port**

multicast/broadcast, col. 2, lines 60-65]; and in the hardware **[Fig. 10A, hardware block, col.**

15, lines 49-51], modifying the packets based on the policy **[QOS provisioning, col. 3, lines 1-**

4].

9. With regard to claims 6 and 21, Viswanadham et al. discloses that the hardware is a router

[switch/router 20, which performs layers 2 & 3 packet delivery; *see also* **col. 3, lines 10-14]**.

10. With regard to claims 7 and 22, Viswanadham et al. discloses the machine-implemented method of and the computer-readable medium carrying one or more sequences of instructions for sending messages, wherein execution of the one or more sequences of instructions by one or more processors causes the one or more processors to perform the steps of: creating an aggregate message from individual messages that are to be sent using an operating system service; transmitting the aggregate message to an operating system level with a system call; within the operating system level, dividing the aggregate message back into individual messages; and transmitting the individual messages using the operating system service [**individual packets are received via the receive buffers in 64-byte slices with start-of and end-of-frame signaling, col. 7, line 32 to col. 8, line 3; serviced in a time-division-multiplexed manner, col. 7, lines 26-32; it is inherent that groupings of packets can be bigger or smaller than the 64 bytes slices, but the packets must be reconstituted in the correct order for unicast/multicast/broadcast to the respective ports via the FE,** *see also* **col. 24, lines 6-10 and col. 21, lines 43-45]**.

11. With regard to claims 8 and 23, Viswanadham et al. discloses that the individual messages are packets [**64 byte slices, col. 7, lines 26-27]**.

12. With regard to claims 9 and 24, Viswanadham et al. discloses that the aggregate message includes a policy [**dynamic routing, per-port multicast/broadcast, col. 2, lines 60-65]**.

13. With regard to claims 10 and 25, Viswanadham et al. discloses that the policy indicates destinations to which messages should be redirected **[packets are directed from a receive ports to a transmit ports (col. 11, lines 47-53) via forwarding block/transmit queue management block, col. 11, lines 28-35]**.

14. With regard to claims 11 and 26, Viswanadham et al. discloses that the policy includes video-to-message information **[inherently, the packets transmitted can be video, or any other high QOS packets, with information in the packet header indicating routing information (e.g., col. 21, line 61 to col. 22, line 3);** *see also* **the functions performed by the auto forwarding block (AFB), col. 15, lines 22-30]**.

15. With regard to claims 12 and 27, Viswanadham et al. discloses that the policy includes a time stamp that is a range of time indicating when the individual messages should be transmitted **[the L3 check block performs a time to live (TTL) check to make sure that the packet can be sent, and, if not, generates an error flag, col. 16, lines 30-42; in addition, the packets are processed according to QOS constraints (policy-based QOS, col. 3, lines 1-4) which determine priority queuing and packet latency]**.

16. With regard to claims 13 and 28, Viswanadham et al. discloses that the policy includes time

stamps for transmitting the individual messages according to the time stamps associated with the

individual messages [**the L3 check block performs a time to live (TTL) check to make sure**

that the packet can be sent, and, if not, generates an error flag, col. 16, lines 30-42; in

addition, the packets are processed according to QOS constraints (policy-based QOS, col.

3, lines 1-4) which determine priority queuing and packet latency].

17. With regard to claims 14 and 29, Viswanadham et al. discloses that the time stamps are

sequence numbers [**inherently, time stamps are sequence numbers—especially when only a**

finite amount of bytes are allocated to the timestamp/sequence number].

18. With regard to claims 15 and 30, Viswanadham et al. discloses that the time stamps are

relative virtual time delays with respect to the first message to be transmitted [**the 2-bit**

timestamps/counters CurrTime and AgeTime where AgeTime is the timestamp that 'ages'

the packets and the CurrTime is the time which is reset to zero, col. 18, lines 45-52; these

are used to maintain the age table entries, col. 17, lines 15-25].

Response to Arguments

19. Examiner has included an Interview Summary form the interview conducted on April 22,

2005. As a recap, Attorney Brokaw and the Examiner discussed the differences in the claim

language [e.g., "user level" and "OS level"] with respect to a reference model such as the Open

Systems Interconnection (OSI) model. No conclusion or agreement was reached with respect to

the-then-pending claims 1-30.

20. Applicant's arguments filed May 2, 2005 have been fully considered but they are not

persuasive.

21. Applicant's representative argues that Viswanadham et al. discloses no technique for

updating a policy used in modifying packets **[Applicant's Amendment dated May 2, 2005,**

page 11, paragraph 5 (last paragraph)]. As stated above for claims 1 and 16, Viswanadham et

al. discloses a policy for manipulating packets **[i.e., dynamic routing, per-port**

multicast/broadcast, col. 2, lines 60-65], and at the OS level, modifying the packets based on

the policy **[QOS provisioning, col. 3, lines 1-4]**. Applicant further argues that Viswanadham et

al. does not even disclose the use of an operating system **[Applicant's Amendment dated May**

2, 2005, page 12, paragraph 1]. Applicant's representative goes on to state that there is no

communication between the software application and the operating system **[Applicant's**

Amendment dated May 2, 2005, page 12, paragraph 4]. However, it is inherent that the policy

for manipulating packets must be contained in the software application and that the operating

system **[e.g., the RISC processors 10, 12]** performs that policy through the instructions in the

software application. Applicant's representative further argues that a software function is not a

policy **[Applicant's Amendment dated May 2, 2005, page 12, paragraph 6 (last paragraph);**

page 14, paragraph 6 (last paragraph)]. However, Examiner disagrees. A software

application, performing a specific set of instructions [e.g., dynamic routing] is interpreted by the

Examiner as a policy.

22. Applicant argues, additionally, that actions that *may* be performed are not a 'policy'

inasmuch as providing a "reason for performing such an action" is **[Applicant's Amendment**

dated May 2, 2005, page 13, paragraph 1; page 14, paragraph 6 (last paragraph)]. First, in

response to applicant's argument that the references fail to show certain features of applicant's

invention, it is noted that the features upon which applicant relies **[i.e., that a policy must**

contain a "reason" for performing such actions versus actions that *may* be (potentially)

performed] are not recited in the rejected claims. Although the claims are interpreted in light of

the specification, limitations from the specification are not read into the claims. See *In re Van*

Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Second, *arguendo*, even if the reason

for performing the policy were claimed, such a reason would be equally applicable to a software

application.

23. Applicant's representative argues that Viswanadham et al. does not disclose creating

aggregate messages from individual messages **[Applicant's Amendment dated May 2, 2005,**

page 17, paragraph 1]. Specifically, Applicant's representative states that sending a "slice" of

data in 64-byte slices represents a "portion of a unit of data, not an aggregation of two or more

messages." **[Applicant's Amendment dated May 2, 2005, page 17, paragraph 1]**. However,

as stated above for claims 7 and 22, it is inherent that groupings of packets can be bigger or

smaller than the 64 bytes slices, but the packets must be reconstituted in the correct order for

unicast/multicast/broadcast to the respective ports via the FE **[col. 7, line 32 to col. 8, line 3; *see***

***also* col. 24, lines 6-10 and col. 21, lines 43-45]**. Thus, a "slice" may contain multiple messages

depending on the message format **[e.g., 4 individual messages that are only 10 bytes long would be sent in one 64 byte slice]**.

24. Applicant's representative further argues that Viswanadham et al. fails to discloses transmitting "anything" to an OS and also that a buffer is not analogous to an OS **[Applicant's Amendment dated May 2, 2005, page 17, paragraph 3 (last paragraph) to page 18, paragraph 1]**. However, as stated above, it is inherent that the policy for manipulating packets must be contained in the software application and that the operating system **[e.g., the RISC processors 10, 12]** performs that policy through the instructions in the software application. Applicant further states that Viswanadham et al. also fails to disclose "within the operating system, dividing the aggregate message back into individual messages." **[Applicant's Amendment dated May 2, 2005, page 18, paragraph 2]**. A stated above, it is inherent that groupings of packets can be bigger or smaller than the 64 bytes slices, but the packets must be reconstituted in the correct order for unicast/multicast/broadcast to the respective ports via the FE **[col. 7, line 32 to col. 8, line 3; *see also* col. 24, lines 6-10 and col. 21, lines 43-45]**. Thus, a "slice" may contain multiple messages depending on the message format **[e.g., 4 individual messages that are only 10 bytes long would be sent in one 64 byte slice and must inherently divide the aggregate message back into individual messages]**.

Conclusion

25. Accordingly, **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension

of time policy as set forth in 37 CFR 1.136(a).

26. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

    (a) Viswanadham et al. (US Patent Publication 2001/0043614), Multi-layer switching

apparatus and method.

    (b) Lee et al. (US Patent Publication 2003/0152076), Vertical instruction and data

processing in a network processor architecture.

    (c) Terrell et al. (US Patent Publication 2003/0189936), Router with routing processors

and methods for virtualization.

    (d) Ayandeh (USP 6,069,895), Distributed route server.

27. A shortened statutory period for reply to this final action is set to expire THREE MONTHS

from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of

the mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on
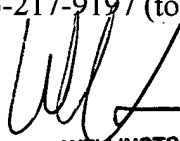
the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the mailing date of this final action.

28. Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Mark A. Mais whose telephone number is (571) 272-3138. The examiner

can normally be reached on 6:00-4:30.

29. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization

where this application or proceeding is assigned is 703-872-9306.

30. Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER

August 11, 2005